



Application No. 10/816,809

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant : Mark M. LEVY et al.
Appl. No. : 10/816,809
File : April 5, 2004
Title : MULTIFUNCTIONAL BREACHING APPARATUS
Group Art Unit: 3731
Examiner : N/A
Docket No. : 1410LEV-US
Honorable Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Sir:

Kindly amend the above-identified application as follows:

In the claims:

1. (original) An expandable bone device comprising:

a unitary body extending along a longitudinal axis and including a deformable distal end portion having a collapsed orientation for placement adjacent a bone structure, said deformable distal end portion comprising relatively wide, mutually contiguous support surfaces outlined by relatively narrow cutouts, said support surfaces being contiguous with the rest of the unitary body via relatively narrow deformable splines, said deformable distal end portion having an expanded orientation wherein said support surfaces are moved transversely outwards away from and generally parallel to the longitudinal axis; and

an actuator coupled to said deformable distal end portion and operative to cause movement of said deformable distal end portion between the collapsed orientation and the expanded orientation.

2. (original) The expandable bone device according to claim 1, wherein said support surfaces are arranged in at least one pair of support surfaces that expand transversely outwards in opposite directions with respect to the longitudinal axis.

3. (original) The expandable bone device according to claim 2, wherein the at least one pair of support surfaces expand transversely outwards in opposite directions symmetrically with respect to the longitudinal axis.

Application No. 10/816,809

4. (original) The expandable bone device according to claim 2, wherein the at least one pair of support surfaces expand transversely outwards in opposite directions non-symmetrically with respect to the longitudinal axis.
5. (original) The expandable bone device according to claim 1, wherein some of said narrow cutouts are generally parallel to the longitudinal axis.
6. (original) The expandable bone device according to claim 1, wherein some of said narrow cutouts are angled at a non-zero angle with respect to the longitudinal axis.
7. (original) The expandable bone device according to claim 1, wherein said deformable splines are generally equally spaced from one another along the longitudinal axis.
8. (original) The expandable bone device according to claim 1, wherein at least some of said deformable splines are spaced at different distances from one another along the longitudinal axis.
9. (original) The expandable bone device according to claim 1, wherein said unitary body comprises a generally flat polygonal shape folded about a fold axis generally transverse to the longitudinal axis.
10. (original) The expandable bone device according to claim 1, further comprising a bridge element that connects between two of said unitary bodies.
11. (original) The expandable bone device according to claim 1, wherein said deformable distal end portion comprises at least one non-smooth surface adapted to adhere to a bone structure.
12. (original) The expandable bone device according to claim 1, wherein said unitary body comprises a non-deformable endpiece distal to said deformable distal end portion.
13. (original) The expandable bone device according to claim 1, wherein said actuator comprises an elongate strip with at least one score line about which the elongate strip is bendable.
14. (original) The expandable bone device according to claim 13, wherein said actuator has at least one of an arcuate expanded shape and a polygonal shape.
15. (original) The expandable bone device according to claim 1, further comprising support structure that supports said deformable distal end portion, said support structure comprising an elongate strip with at least one score line about which the elongate strip is bendable.
16. (original) An expandable bone device comprising:
a unitary body extending along a longitudinal axis and including a deformable portion having a collapsed orientation for placement adjacent a bone structure and an expanded orientation comprising a three-dimensional prismatic shape.

Application No. 10/816,809

17. (original) The expandable bone device according to claim 16, wherein said deformable portion is balloon expandable.

18. (original) The expandable bone device according to claim 16, wherein said deformable portion is expandable by means of inherent spring elasticity.

19. (original) The expandable bone device according to claim 16, wherein said deformable portion is constructed of a shape memory alloy.

20. (original) The expandable bone device according to claim 16, wherein said deformable portion is expandable to a three-dimensional prismatic shape.

21. (canceled)